

REMARKS

I. Formalities

Claims 1-23 remain in the subject patent application. No claims are amended, added, or canceled herein, and Applicants respectfully submit that no new matter is added herein.

II. Response to the 35 U.S.C. §102 Rejections

Claims 1, 2, 9, and 10 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by U.S. Patent No. 6,472,753 to Kondo (hereinafter “Kondo”). These rejections are respectfully traversed in view of the remarks made below.

Anticipation requires each element of a claimed invention to be disclosed in a single reference. Disclosure cannot be predicated on teachings in a reference that are vague or based upon conjecture. It is respectfully submitted that silence in a reference is not a proper substitute for an adequate disclosure of facts from which a conclusion of anticipation may justifiably follow. A proper anticipation rejection under 35 U.S.C. §102 requires that each element of a claimed invention be disclosed in a single reference having the same elements, united in the same way, and performing the same function.

A. Remarks Directed to Claim 1

Claim 1 requires, among other things, the step of forming a buried layer in a semiconductor substrate underneath a portion of a trench that has also been formed in the semiconductor substrate. An advantage of the resulting structure is discussed at page 6, lines 16-20 of the pending application, where it is stated that “the presence of buried layer 240 underneath and at least partially contiguous with a portion of trench 130 lowers a lateral component 241 of R_{cx} in semiconductor device 101. In certain embodiments, buried layer 240 can reduce lateral component 241 of R_{cx} in semiconductor device 101 to a level comparable to that achieved with a traditional deep N+ buried layer” Kondo does not show or disclose this limitation or its attendant advantages. Instead, Kondo discloses (see FIGs. 20a-e and column 13, lines 13-67) a device in which a buried layer (BOX layer 2) is above and laterally adjacent to a trench (trench 7). Nothing in Kondo discloses the concept of placing the buried layer underneath the trench.

Based on the foregoing, Applicants respectfully submit that the 35 U.S.C. §102 rejection of amended claim 1 should be withdrawn. Such withdrawal of the rejection is respectfully requested.

B. Remarks Directed to Claims 2, 9, and 10

Dependent claims must be construed to include all of the limitations of the claims from which they depend, as required by 37 C.F.R. 1.75(c) and M.P.E.P. 608.01(n). Therefore, claims 2, 9, and 10, which depend from claim 1, are also not shown or disclosed by Kondo for at least the same reasons as listed earlier for claim 1. Accordingly, Applicants respectfully request that the 35 U.S.C. §102 rejections of claims 2, 9, and 10 be withdrawn.

III. Response to the 35 U.S.C. §103 Rejections

Claims 20, 22, and 23 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Kondo. These rejections are respectfully traversed in view of the remarks made below.

A. Remarks Directed to Claims 20

Like claim 1, claim 20 requires, among other things, the step of forming a buried layer in a semiconductor substrate underneath a portion of a trench that has also been formed in the semiconductor substrate. As has been mentioned, an advantage of the resulting structure is discussed at page 6, lines 16-20 of the pending application. Kondo fails to teach or suggest this limitation or its attendant advantages. Instead, Kondo discloses (see FIGs. 20a-e and column 13, lines 13-67) a device in which a buried layer (BOX layer 2) is above and laterally adjacent to a trench (trench 7). Nothing in Kondo teaches the concept of placing the buried layer underneath the trench.

Based on the foregoing, Applicants respectfully submit that the rejection of claim 20 should be withdrawn. Such withdrawal of the rejection is respectfully requested.

B. Remarks Directed to Claims 22 and 23

Dependent claims must be construed to include all of the limitations of the claims from which they depend, as required by 37 C.F.R. 1.75(c) and M.P.E.P. 608.01(n). Therefore, claims 22 and 23, which depend from claim 20, are also not taught or suggested by Kondo for at least the same reasons as listed earlier for claim 20. Accordingly, Applicants respectfully request that the 35 U.S.C. §102 rejections of claims 22 and 23 be withdrawn.

IV. Remarks Directed to the Allowed and Objected-To Claims

The allowance of claims 11-19 is noted with approval and thanks.

Claims 3-8 and 21 were objected to as being dependent upon a rejected base claim, but the Office Action stated that the claims would be allowable if they were rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants wish to thank Examiner Mandala for this indication of allowable subject matter. The suggested rewriting of claims 3-8 and 21 is not being undertaken in this Response because it is believed that the independent claims from which claims 3-8 and 21 depend are themselves allowable, as discussed above. Accordingly, it is respectfully submitted that claims 3-8 and 21 are allowable in their current form, at least because of their dependence from an allowable claim. Based on the foregoing, it is respectfully requested that claim s 3-8 and 21 be allowed.

CONCLUSION

Applicants have made an earnest attempt to place this case in condition for allowance. In light of the remarks set forth above, Applicants respectfully request reconsideration and allowance of all of the pending claims that have not already been allowed.

No fees are believed to be due in connection with this paper. However, the Commissioner for Patents is hereby authorized to charge any fees necessitated by this Response, or credit any overpayment, to Account No. 02-4467.

If there are matters that can be discussed by telephone to further the prosecution of this application, Applicants invite Examiner Mandala to call the undersigned attorney at the Examiner's convenience.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kenneth A. Nelson". The signature is fluid and cursive, with the first name "Kenneth" being more prominent and the last name "Nelson" following in a similar style.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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